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## For debate

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# Distinguishing theories of dysfunction, treatment and care. Reflections on 'Describing rehabilitation interventions'

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**Background:** An editorial by Wade (*Clinical Rehabilitation* 2005; **19**: 811–18) suggested a method for describing rehabilitation interventions.

**Objective:** To review the editorial critically, and to suggest a more complete theory.

**Editorial:** The editorial develops a model identifying factors that should be considered when analysing a complex rehabilitation problem, and provides a high-level description of the rehabilitation process. It explicitly does not address theories of behaviour change.

**New ideas:** Three additional theoretical models are needed. The first considers the mechanisms that link the factors identified in Wade's model. For example how does self-esteem (in personal context) actually influence activity performance? This is a theory of *dysfunction*. The second needs to discuss how treatments alter their target. For example how does cognitive behavioural therapy alter pain perception and/or alter activity performance? This is a theory of *treatment*. It may be related to the theory of dysfunction. The third, which is less certain, needs to consider the process of giving support (maintaining the status quo). For example, how should one offer continuing opportunities for meaningful social role performance to someone with major cognitive losses? This is a theory of *care*.

**Conclusion:** The two models that Wade integrated in his conceptual framework (the World Health Organization's International Classification of Functioning (WHO ICF) and the rehabilitation process) should primarily be considered as descriptive in character. Theories are still needed to understand how activity limitation arises and how treatments alter activity limitation, and possibly how a patient is supported to maintain a certain level of activity.

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## Introduction

There is an increasing awareness in the field of clinical rehabilitation that the content and theoretical underpinnings of its treatment programmes should be explicated and mapped out in detail.<sup>1-7</sup> It has been argued that rehabilitation outcome research should move beyond the merely 'black box' evaluations that are characterized by a primary focus on patient characteristics and outcome measures without much concern with what occurs in treatment itself.<sup>2-4,6,7</sup> Professionals and researchers are urged to take the lid off the black box and to specify systematically its contents and theoretical underpinnings, and then translate the resulting material into theory-driven research questions. Through careful integration of theory and methodology treatment outcome research can be designed in ways that enhance both the understanding of research findings and their usefulness in rehabilitation practice.<sup>1,3,5-7</sup> In other words, researchers have to work on the development of treatment theory prior to the conduct of outcome research.<sup>1-4,8</sup> Treatment theory attempts to describe the process through which an intervention is expected to have effects on a specified target population.<sup>8</sup>

Correspondingly Wade emphasizes in his editorial that 'research into rehabilitation has rarely specified the activities being investigated, which hinders both the research itself and the wider acceptance of any research undertaken' (ref. 9, p.811). He argues that specification of rehabilitation interventions should be primarily focused on improvement of the vocabulary used to describe rehabilitation including a theory or explanatory model.<sup>9-11</sup> Influenced by advocates of treatment theory we wondered what Wade means by theory and explanatory model in this context, and whether the theory and specification work the 'treatment theorists'<sup>1-7</sup> are pleading for could be interpreted differently. We therefore searched for differences and similarities in Wade's and the treatment theorists' positions.

## Description of rehabilitation in general

In his editorial Wade integrates two models/theories that should allow a description of any

rehabilitation procedure in a reasonably clear manner using a consistent vocabulary: (1) the illness model that underlies the WHO ICF classification and (2) a model of the rehabilitation process. The aim of the first model is to 'explain how activity limitation arises and thus which factors can be treated', and the aim of the second model is 'to explain the process of rehabilitation, possibly its goals, and how it is organised'. (ref. 9, p.812) In addition to this, Wade also sets apart a third type of theory including theories of behavioural change, which must, he states, underpin most if not all rehabilitation treatments. His editorial does not reflect upon the latter type of theory.

According to Wade, his integrated model extends the boundaries of rehabilitation and shows that services and agencies must work together for rehabilitation to be effective. It must convince purchasers that the aims of rehabilitation are not just restricted to concrete goals such as achieving independence in ADL.<sup>12</sup> Moreover, it must demonstrate that the process of rehabilitation is a reiterative problem-solving activity focused on disability, which includes assessment, goal-planning, and intervention and evaluation procedures.<sup>13,14</sup> These are also the procedures for which Wade attempts to find evidence in several publications.<sup>13-15</sup>

We think that Wade is putting forward a conceptual framework that may be instrumental in describing the aims and process of rehabilitation *in general*; a framework that may thus be of help in describing the different stages of the rehabilitation service delivery process in detail. The framework articulates the complexities of rehabilitation by showing that its interventions are subject to much more variation than, for example, a drug or surgical intervention, thereby drawing a line between 'medical treatment' and 'rehabilitation treatment'.<sup>13,15</sup> Therefore, according to our analysis, Wade's contribution to the description discussion should primarily be considered within the context of the professionalization of rehabilitation medicine in relation to other fields of medicine. He is concerned that its credibility in the competitive health market may come under fire if we do not succeed in characterizing the nature of the rehabilitation process more accurately.<sup>9</sup>

## **Specific descriptions of rehabilitation treatments**

Our frame of reference comes from scholars<sup>1-4</sup> in rehabilitation science who, within the context of outcome research, plead for the specification of theories of treatment. Influenced by programme theorists in the field of the social sciences,<sup>8,16</sup> they advocate the integration of theory in clinical trials investigating the efficacy and effectiveness of treatment programmes in rehabilitation. They argue that improving outcome research requires a better understanding of what goes on in treatment, and of what is it that produces therapeutic change. Consequently, researchers have to work on plausible treatment theories attempting to identify the features of the interventions, recipients, and their environments that comprise the causal sequences connecting interventions and outcomes. Then, it is argued, research findings can be used for both the improvement and legitimization of treatment programmes.<sup>1,3-5,7</sup>

This implies that researchers and professionals should open the black box and systematically describe the content and underlying hypotheses of the mechanisms of treatments under scrutiny, as a prerequisite for determining whether, how, when and for whom it is most effective. Regarding the complexities of rehabilitation treatment, it would be better, as Whyte and Hart suggest,<sup>7</sup> to think of a set of nested black boxes: a Russian doll. Opening the outer doll, the macro layer, reveals its contents, but those contents in turn can be still further specified and so on. By specifying the content and theoretical underpinnings of diverging treatment programmes in stroke rehabilitation<sup>5</sup> and of a new cognitive behavioural treatment in chronic low back pain rehabilitation we have acknowledged that (Siemonsa PC, Schröder CD, Lettinger AT, unpublished).

Treatment theories thus do not describe the *rehabilitation process in general* as Wade's framework is designed to do. They are not focused on a full description of procedures and effective service delivery in rehabilitation. Rather, such theories try to describe the content and guiding principles of *specific treatment programmes*, and test them. Indeed, the plea for treatment theory should primarily be considered within the context of the evidence-based medicine discussion. We think it is

important for both the clarity of the description discussion and the further development of Wade's conceptual framework to distinguish his general level of description from treatment theorists' specific levels of description. The question then arises as to how the two levels of description and linked models/theories relate to each other.

## **Theoretical foundations of rehabilitation**

We think Wade's new integrated framework should first and foremost be considered as a descriptive model. That is, he is working on an adequate system to classify and describe interventions that constitute rehabilitation based on agreed and consistent vocabulary.<sup>9</sup> As far as we can see, Wade has only used the term explanatory in relation to the WHO ICF model, which is just one part of the framework. The second model that Wade integrated into his new conceptual framework, that of the rehabilitation process,<sup>17,18</sup> does not appear to be explanatory at all. As it is described in terms of assessment, goal-setting, intervention and evaluation, it can be seen as a general format to approach professional work systematically. It is apparent that in other fields, such as education and management, similar procedures are used.

But the question remains of how the term 'explanatory' in relation to the WHO ICF model should be understood. In a previous editorial on this subject, Wade and Halligan<sup>10</sup> suggested improvements that would enable the WHO ICF to be used as a powerful analytic and explanatory model of human experience and behaviour in any situation, not only in illness and disease. One should therefore no longer consider this illness model as a descriptive framework, simply providing words and concepts for the use of rehabilitation professionals. Rather it should be used in rehabilitation as an explanatory model, a model that explains both normal functioning and the causes and possible patterns of disabilities that follow pathology.<sup>10</sup>

In their editorial, Wade and Halligan<sup>10</sup> thus suggest that the WHO ICF is moving from description to explanation. But this does not inevitably imply that the ICF, such as it is

integrated in Wade's framework, is explanatory in character too. Quite the opposite, we argue that the integrated ICF model is as descriptive as the model of the rehabilitation process in Wade's conceptual framework. It allows a reasonable classification of the target of any intervention.

The above does not, however, imply that there is no theory or set of theories hidden behind the procedures and interventions that Wade distinguishes in his new framework. The problem is that such theoretical underpinnings are rarely made explicit, and if they are, it is not specified how they shape the content of procedures and interventions in rehabilitation. In a previous editorial,<sup>14</sup> for instance, Wade does refer to the importance of social learning and self-regulation theories as a theoretical basis for the goal-planning procedure. However, how such theories have shaped the content of goal-planning has not been made explicit.

It is this deeper level of description and underlying theory that we think advocates of treatment theory are in favour of, and our research group is working on. This is why we argue that further description work in rehabilitation should be aimed at uncovering how biomedical and psychosocial theories lying behind rehabilitation procedures and interventions co-constitute their contents. An important difference in focus of theory articulated in theory-driven outcome circles might be helpful in further clarifying the description discussion on this deeper level of understanding (i.e. between theories of dysfunction and theories of treatment).

## Distinguishing theories of dysfunction and theories of treatment

Scholars in favour of *theory-driven* outcome research have emphasized that an analytical distinction should be made between theory about the *nature* of the problem and theory about the *solution* to the problem.<sup>8,16</sup> Within the field of psychotherapy Kazdin has distinguished in this connection 'theories of dysfunction' and 'theories of treatment'.<sup>19,20</sup> Kazdin has defined 'theories of dysfunction' as the conceptual underpinnings and hypotheses about the likely factors leading to the clinical problem or pattern of functioning, the

processes involved, and how these processes emerge or operate. Such theories conceptualize how a particular problem comes about, how it is maintained, how it ends or reappears, and so on. For example, biomedical theories about tissue damage might explain the onset of low back pain and psychosocial theories about maladaptive thinking, feeling and behaving how the low back pain is maintained, and so on.

'Theories of treatment', on the other hand, refer to the conceptual underpinnings of the process(es) of change during treatment. The focus is on what therapy is designed to accomplish and through what means and processes.<sup>19,20</sup> For example, operant learning theories are hypothesized as the conceptual underpinnings of 'graded activity' (i.e. a time-contingent approach for patients with chronic low back pain aimed at changing pain behaviour into well behaviour). And pathophysiological theories are seen as the conceptual underpinnings of pain-contingent approaches to low back pain aimed at reducing tissue damage and consequently pain. Theories of treatment thus delineate the general clinical problem or pattern of functioning (theories of dysfunction) by focusing on what treatment (components) is designed to accomplish and by what means. Theories of treatment should be explicated to investigate questions such as what works best for whom and for what reasons.

The question now is what Wade is theorizing about when he distinguishes three types of theory in his section on theoretical foundations: (1) theory of illness and disability, (2) theory of the rehabilitation process, and (3) theory of behavioural change.

## What is Wade theorizing about?

The first theory about illness and disability is related to the WHO ICF model. We argue that the ICF is primarily focused on the nature of the problems rehabilitation interventions act upon rather than on the content of treatments and related processes of therapeutic change. That is, its objective is to order the clinical problem or pattern of functioning at the level of disability and activity limitation consistently in positive terms, from the perspectives of the patient and his or her

environment as well as from the perspective of rehabilitation professionals and researchers. In Kazdin's words, such researchers are working on 'theories of dysfunction'. This implies that the revised WHO ICF can be instrumental in providing the conceptual underpinnings of the rehabilitation diagnosis, including its assessment procedures.

The second type of theory – relating to the rehabilitation process including assessment, goal-setting, and intervention and evaluation procedures – appears to us to be the odd one out. Such theories are about general procedures in the sense that they are applied in any profession that aims to work more methodically and systematically. This does not apply to the third type of theory – relating to behavioural change. According to us, such theories are of central importance in relation to the question of what one is theorizing about in clinical rehabilitation. It is true, Wade also emphasizes that this third type of theory is at the heart of rehabilitation – in that such theories underpin most if not all rehabilitation treatments – but he does not consider this type of theory further in his editorial.

Wade does not seem to make a distinction between theories of dysfunction and theories of treatment. Indeed, the uncovering and specification of treatment theories is still an underutilized area in rehabilitation medicine, as in many other health care services.<sup>19–21</sup> Take 'treadmill gait retraining' or 'cognitive behavioural therapy', which figure as examples in Wade's classification of rehabilitation treatment domains. Should they not mainly be seen in this light as labels attached to unpacked black boxes? Obviously the focus is not on what such training or therapy is designed to realize. Nor are the means and processes of change described in detail. The only thing articulated is that treadmill gait retraining is targeted on the 'activity' domain and cognitive behavioural therapy on the 'personal' domain of the ICF. We argue that in addition to the *target* of interventions, the *content* and *conceptual underpinnings* should also be explicated and described in more detail.

Furthermore in his conceptual framework Wade has set apart three planned interventions: (1) assessment and data collection, (2) treatment, and (3) support/care. He argues that in terms of health care costs in particular the distinction between 'treatment' and 'support/care' is an im-

portant one. Wade defines support/care as 'any intervention that is needed simply to maintain the patient's situation', and treatment as 'any intervention that leads to a sustained change in the natural history or expected course of the patient's illness' (ref. 9, p.816). We put forward that this distinction may also be an interesting one in relation to the question of what one needs to theorize about in rehabilitation. Support/care interventions figure on the same level of understanding as assessment and treatment interventions. Moreover, the theories behind rehabilitation assessment (theories of dysfunction) and rehabilitation treatments (theories of treatment) may be quite different from the theories that form the conceptual underpinnings of care/support.

Our description work is focused on specifying the content and relationship between theories of dysfunction and theories of therapeutic change (Siemonsa PC, Schröder CD, Lettinger AT, unpublished). However, it might also be challenging to concentrate on the content of theories of care/support, and, indeed, their relationship to the other two types.

## More clarity?

After rereading and analysing Wade's editorial and related work, we were able to create more clarity in our own research group. We discovered that Wade is working on a conceptual framework for a consistent and full description of the *rehabilitation process in general*, which is indeed important for all involved professionals and, in particular, for rehabilitation physicians' clinical work. We agree with Wade that a framework that helps to describe rehabilitation delivery services in a more detailed and systematic manner is very much needed, not least because of the complexities in relation to other medical interventions. Indeed, it might help rehabilitation medicine to continue within the field of the competitive health care market.

But we also argue that something more should be done. That is, anyone who wants to conduct research into the effectiveness of complex rehabilitation interventions, and who wishes not only to measure global outcomes but also to contribute to a better understanding of the mechanisms,

has to move beyond black box evaluations. This implies that the description work should furthermore be focused on uncovering the theoretical underpinnings of *specific rehabilitation interventions* by identifying how such theories co-constitute their contents. Conceptual frameworks constructed to work on treatment theory have proved to be very useful within this uncovering and specification process (Siemonsa PC, Schröder CD, Lettinga AT, unpublished).

There is indeed increasing awareness in the field of rehabilitation that fine-tuning of methodological and theoretical issues might lead to a better understanding of the therapeutic process, and would provide an avenue to knowledge implementation and treatment improvement.<sup>1-7,9</sup>

Why should we not try to realize Lipsey's fantasy in rehabilitation? That is, 'Imagine a research community in which every report of a treatment effectiveness study included a section labelled "treatment theory" which was considered to be as obligatory as the customary introduction, methods, results and discussion section' (ref. 8, p. 49). In doing so, we could maximize the potential for understanding research results, and therewith its implementation in clinical practice.

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